REMARKS

Reconsideration of the present application and withdrawal of the rejection of claims 1-7 is respectfully requested. Applicants have attempted to address every objection and ground for rejection in the Official Action dated June 12, 2007, and believe the application is now in condition for allowance.

In the Office Action, the Examiner states that claims 8-14 are directed to an invention that is independent or distinct from the invention originally claimed. Specifically, the Examiner states that claims 8-14 are directed to a method of polymerization and claims 1-7 are drawn to a catalyst and method of making a catalyst. Accordingly, the Examiner withdrew claims 8-14 from the application as being directed to a nonelected invention. Applicants have marked claims 8-14 as being withdrawn and reserve the right to file claims 8-14 in one or more divisional applications based on the present application.

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,593,267 to Kuo et al. ("Kuo") in view of International Document No. WO 99/47598 to Alexandre et al. ("Alexandre"). Applicants have cancelled claims 1-4 without prejudice or disclaimer. Accordingly, the rejection of claims 1-4 is now moot.

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuo in view of Alexandre and in further view of U.S. Patent No. 4,510,257 to Lewis et al. ("Lewis"). Applicants respectfully submit that the combination of Kuo, Alexandre and Lewis does not disclose or suggest the features of claim 5.

Kuo discloses a composition of a carboxylate metal salt in combination with a heated polymerization catalyst to improve the flowability and operability of the catalyst and methods for preparing the catalyst composition. The carboxylate metal salt is combined with the catalyst system by conventional means (Col. 14, lines 55-65). Specifically, the polymerization catalyst is heated to a temperature greater than room temperature (20°C) and then contacted with the carboxylate metal salt. (Col. 15, lines 50-56). Kuo also discloses heating the catalyst to temperatures greater than 30° C and preferably greater than 50°C and more preferably 60°C to 100°C. (Col. 16, lines 13-21). In Kuo, the carboxylate metal salt does not act as an active ingredient of the catalyst.

In contrast, claim 5 recites, among other things, that the catalyst is prepared by an intercalation process and includes the step of "dissolving a zinc dicarboxylate in a strongly polar solvent with a pH value from 1.0 to 4.0, to form a reaction system, then introducing calcined acidic matrix into the reaction system to perform intercalation for 30~120 minutes at a temperature from room temperature to 80 °C." The intercalation of a compound into a layered material is a complex process that includes both a chemical reaction and a physical interaction. Kuo does not disclose or suggest intercalation or preparing any catalyst using an intercalation process.

Furthermore, the intercalation reaction of claim 5 generally includes two indispensable steps of delaminating inorganic mineral particles having layered structure and intercalating zinc dicarboxyl into an organic matrix. The step of "delaminating inorganic

mineral particles having layered structure with diluted acid" of claim 5 includes a chemical process involving an ion exchanging reaction between the H+ of diluted acid and the metal cations exiting in the layer gallery of the layered support. Additionally, the intercalation of zinc dicarboxylate salt into the gallery of the layered support of claim 5 is a combination of a chemical reaction and a physical interaction. Kuo does not disclose or suggest such subject matter. Instead, Kuo prepares the catalyst composition by heating, which is different from the intercalation process of the claimed invention. The reaction condition defined in claim 5 of the present application is closely connected with the property of zinc dicarboxylate acting as an active catalyst ingredient. By using the preparation process of claim 5, a catalyst having high catalytic efficiency can be obtained.

Alexandre does not remedy the deficiencies of Kuo. Alexandre discloses a polyolefin nanocomposite prepared by inserting an alkyl aluminoxane into a layered structure of organophilic clay and subsequently a catalyst to form a complex that promotes olefin and styrenic polymerization and platelet dispersion where the dispersibility of the clay particles in the polymer matrix is enhanced by in-situ polymerization. (See the Abstract). The specific preparation method is disclosed on page 2, line 7 to page 3, line 5 of Alexandre. The matrix of Alexandre is different than the claimed invention because the matrix disclosed by Alexandre is untreated whereas the matrix of claim 5 is treated by the step of "delaminating inorganic mineral particles having layered structure with diluted acid."

Furthermore, Alexandre discloses using alkyl aluminoxane and a catalyst for olefin polymerization which are both sensitive to oxygen and water. In contrast, claim 5 recites, among other things, "dissolving a zinc dicarboxylate in a strongly polar solvent with a pH value from 1-4." The inserting substance of claim 5, zinc dicarboxylate, is stable to oxygen and water. Thus, Alexandre and the claimed invention are significantly different methods for preparing catalysts.

Furthermore, the layered support of Alexandre is treated by swelling in water and drying (i.e., a physical process). (Page 2, lines 9-11). Alexandre discloses that the inserting reaction includes a two-step chemical reaction. First, there is an inserting reaction of alkyl aluminoxane in the presence of an inert solvent to form a clay/alkyl aluminoxane complex. Second, the above complex is contacted with a catalyst that promotes olefin polymerization to form a clay/alkyl aluminoxane/catalyst complex in the presence of a suitable solvent. (See page 2, lines 11-15).

In contrast, claim 5 recites, among other things, "delaminating inorganic mineral particles having layered structure with diluted acid," "dissolving a zinc dicarboxylate in a strongly polar solvent," performing "intercalation of the zinc dicarboxylate into the organic matrix," and "refluxing the crude catalyst in a solvent with less polarity than said strong polar solvent at the temperature from 80 to 140°C for 24 hours." These steps include both a chemical process and a chemical-physical process. Alexandre does not disclose or suggest such steps.

Additionally, Alexandre discloses a method that enhances the dispersibility of the organophilic clay particles in a polymer matrix and form noncomposites by in-situ polymerization of olefin monomers promoted by the clay/alkyl aluminoxane/catalyst complex. In contrast, the process of claim 5 prepares an intercalated catalyst having a high activity for copolymerization of carbon dioxides and epoxides. Thus, even if there were a suggestion to combine Kuo and Alexandre, which Applicants dispute, the claimed method would not be disclosed or suggested.

Lewis does not remedy the deficiencies of Kuo and Alexandre. Lewis discloses intercalated clay compositions where the interlayers of the clay have been intercalated with three-dimensional silicon oxide pillars into layers of clay that form a porous material. (See the Abstract). Specifically, the preparation method disclosed by Lewis includes contacting a smectite type clay with a solution of polyhedral oligosilsesquioxane, in which the intercalated clay is calcined in an oxidizing atmosphere at temperatures ranging from about 100°C to about 800°C. (Col. 8, lines 7-25). This method is significantly different than the process of claim 5.

Although both the method disclosed by Lewis and the claimed process utilize a calcining process when treating the matrix, the results of the calcining process are completely different. In Lewis, the calcining process keeps the spacing of the expanded clay by calcining the pillaring agent to form the silica oxide pillars and to allow other inserted substances to enter into the layered structure of clay. In contrast, claim 5 recites, among

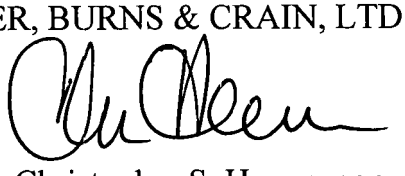
other things, the steps of "delaminating inorganic mineral particles having layered structure with diluted acid," "dissolving a zinc dicarboxylate in a strongly polar solvent," "introducing calcined acidic matrix into the reaction system to perform intercalation for 30~120 minutes," "removing the solvent to obtain a crude catalyst," "refluxing the crude catalyst in a solvent with less polarity than said strong polar solvent" and "separating the inorganic intercalated catalyst by filtration." The calcining process of claim 5 therefore removes the impurities produced in the previous delaminating step which is not disclosed or suggested by Lewis.

Accordingly, Applicants submit that claim 5 and claims 6 and 7, which depend from claim 5, are each patentably distinct over the combination of Kuo, Alexandre and Lewis and are in condition for allowance.

In view of the above amendments, the application is respectfully submitted to be in allowable form. Allowance of the rejected claims is respectfully requested. Should the Examiner discover there are remaining issues which may be resolved by a telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By 

Christopher S. Hermanson
Registration No. 48,244

Customer No. 24978

September 12, 2007

300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
Telephone: (312) 360-0080
Facsimile: (312) 360-9315